WHAT IS CLAIMED IS:

1. A light-emitting diode comprising:

a semiconductor substrate; and

a layered structure, made of an AlGaInP type compound semiconductor material and provided on the semiconductor substrate,

wherein the layered structure comprises:

a light-emitting structure composed of a pair of cladding layers and an active layer for emitting light provided between the pair of cladding layers; and

a current diffusion layer which is lattice-mismatched with the light-emitting structure, wherein a lattice mismatch $\Delta a/a$ of the current diffusion layer with respect to the light-emitting structure defined by the following expression is -1% or smaller:

$$\Delta a/a = (a_d - a_e)/a_e$$

where a_d is a lattice constant of the current diffusion layer, and a_e is a lattice constant of the light-emitting structure.

2. A light-emitting diode according to claim 1, wherein crystal of the semiconductor substrate is inclined by 8° (8 degrees) to 20° (20 degrees) in a [011] direction with

respect to a (100) plane thereof.

3. A light-emitting diode according to claim 1, wherein a composition of the current diffusion layer is selected in such a manner that the current diffusion layer becomes transparent with respect to a wavelength of light emitted from the light-emitting structure.

4. A light-emitting diode according to claim 1, wherein a composition of the current diffusion layer is expressed as $(Al_xGa_{1-x})_yIn_{1-y}P$, and x is set in the range of 0.01 to 0.05 and 1-y is set in the range of 0.01 to 0.30 in the composition.

0.0 to 0.3

5. A light-emitting diode according to claim 1, wherein a composition of the current diffusion layer is expressed as $(Al_xGa_{1-x})_yIn_{1-y}P$, and at least one of a value of x and a value of 1-y in the composition varies along a thickness direction of the layered structure.

6. A light-emitting diode according to claim 1, wherein a composition of the current diffusion layer is expressed as $(Al_xGa_{1-x})_yIn_{1-y}P$, and at least one of a value of x and a value of 1-y in the composition decreases in a step-like

manner along a thickness direction of the layered structure from an interface with the light-emitting structure toward an opposite end of the current diffusion layer.

7. A light-emitting diode according to claim 1, wherein a composition of the current diffusion layer is expressed as $(Al_xGa_{1-x})_yIn_{1-y}P$, and at least one of a value of x and a value of 1-y in the composition varies in a step-like manner along a thickness direction of the layered structure from an interface with the light-emitting structure toward an opposite end of the current diffusion layer, thereby controlling a resistivity of the current diffusion layer in the thickness direction.

8. A light-emitting diode according to claim 5, wherein both the values of x and 1-y in the composition of the current diffusion layer vary, independent of each other.

9. A light-emitting diode according to claim 6, wherein both the values of x and 1-y in the composition of the current diffusion layer decrease, independent of each other.

10. A light-emitting diode according to claim 7, wherein both the values of x and 1-y in the composition of the current diffusion layer vary, independent of each other.

add A8

add B3 1